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Sun Power

Solar energy's popularity rises as systems become more sophisticated, costs come down

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PAMELA O'Malley Chang's little Berkeley cottage, which gets its share of cloudy days, is a perfect example of what may become a standard one day: an energy-efficient interior powered by a sleek set of solar panels incorporated into the roof.

Chang didn't know it when she began the project two years ago, but now, with global warming breathing down our necks, her old house is on the forward edge of a renewed interest in environmentally friendly power.

With recent state and manufacturers' rebates pushed along by incentives such as the 1997 Million Solar Roofs federal initiative and more evolved systems of engineering, solar power has never made more sense.

Chang had a bit of an advantage -- she's an architect and civil engineer who lives just across town from Gary Gerber's Sun Light & Power Co. Gerber helped organize the recent house tour sponsored by the Northern California Solar Energy Association that included an array of retrofitted solar projects as well as a house, rebuilt after the Oakland fire with a full set of passive and active solar features.

For Gerber, incorporating solar energy systems into daily life has been a passion since the early 1970s. ``I've just had this predilection for wanting to conserve. I hate waste. I think I saw back then that really the only future we have is a solar future. Ultimately, there's no other renewable source of energy that's viable."

He and his partners founded Sun Light in 1975. Gerber's first clients were his parents, whose Walnut Creek home soon sported a wood-framed collector with a special glass cover, all to heat the home's hot water.

In those days, the industry's best solar product was just that -- heating water. That technology has grown more sophisticated in look and function and has decreased in cost.

What's undergone even more rapid change is solar electricity, Gerber said. ``The prices (for it) have been inching down over the years and (conventional) energy prices have been rising," he said. A new, $54 million state rebate fund, on top of some regulatory changes, has brought the overall cost down within reach of what Gerber says is a pent-up demand.

One of those streamlined procedures is the consumer's new right to sell back unused power to a utility at full price, in effect running the meter backward -- a far less complicated approach than the previous rules, which required monthly adjustments and meter readings.

While a system -- complete with roof panels and interior grid and batteries -- might cost as much as the $22,000 version Chang installed in her 1,400-square-foot house -- ``what you're essentially doing is pre-paying your next 30 years of (power) bills," Gerber said.

A special loan program through GMAC Mortgage, developed by the Solar Energy Industries Association and the U.S. Dept. of Energy's Million Solar Roofs program, is available to help finance these projects. Costs can start as low as $500 for a system installed as part of a new home and $1,000 for a retrofit into an older home.

Stuart Chaitkin and his wife, Maria Merritt, for example, became clients of Gerber's a decade ago, installing solar panels on their vintage Berkeley home's roof to heat water. A year ago, the couple added a solar electric generator to the system, which in its first year of operation has cut their PG&E bill for the year by almost $300.

What the recent tour showed is that solar energy systems can be adapted to just about any physical structure or setting. But there are limits. The roof of Gerber's home is shaded by a large tree, but sometimes it doesn't take much more than the set of panels like the ones that lie flat against a 480-square-foot, south-facing portion of the roof of Chang's home to provide enough power for an average size home.

And while Gerber's parents' solar panels were still working well when they recently sold their home, advances have been made to lengthen operating life. The solar panels on Chang's roof are bonded to the roof's substrate and have an estimated 40 to 50 years of wear. Once in place, the panels are the first stop in a system that sends solar power to a panel of boxes in Chang's basement, where converters redistribute the power to the home's electrical systems. Enough power is stored in four car-size batteries to keep the house lit -- and major appliances, including Chang's computer, operating -- for at least a day during a power outage.

Gerber said some of his clients are now motivated by Y2K concerns and are looking for independence from the larger power system. Chang considers her system to be a millennial gift, ``a way in which I could positively affect the future."

Another advantage to this form of power is that it's ``clean," explained Gerber. ``There's no static in it -- and it doesn't surge."

One subtle side effect does come with this territory, though, and one tourgoer asked Chang about it after tapping gently on a sample roof panel. ``It's not all that noisy," Chang said. ``Rain does make a distinctive sound (on the panels), but it's not enough to wake me up."